

APRIL 4, 1986

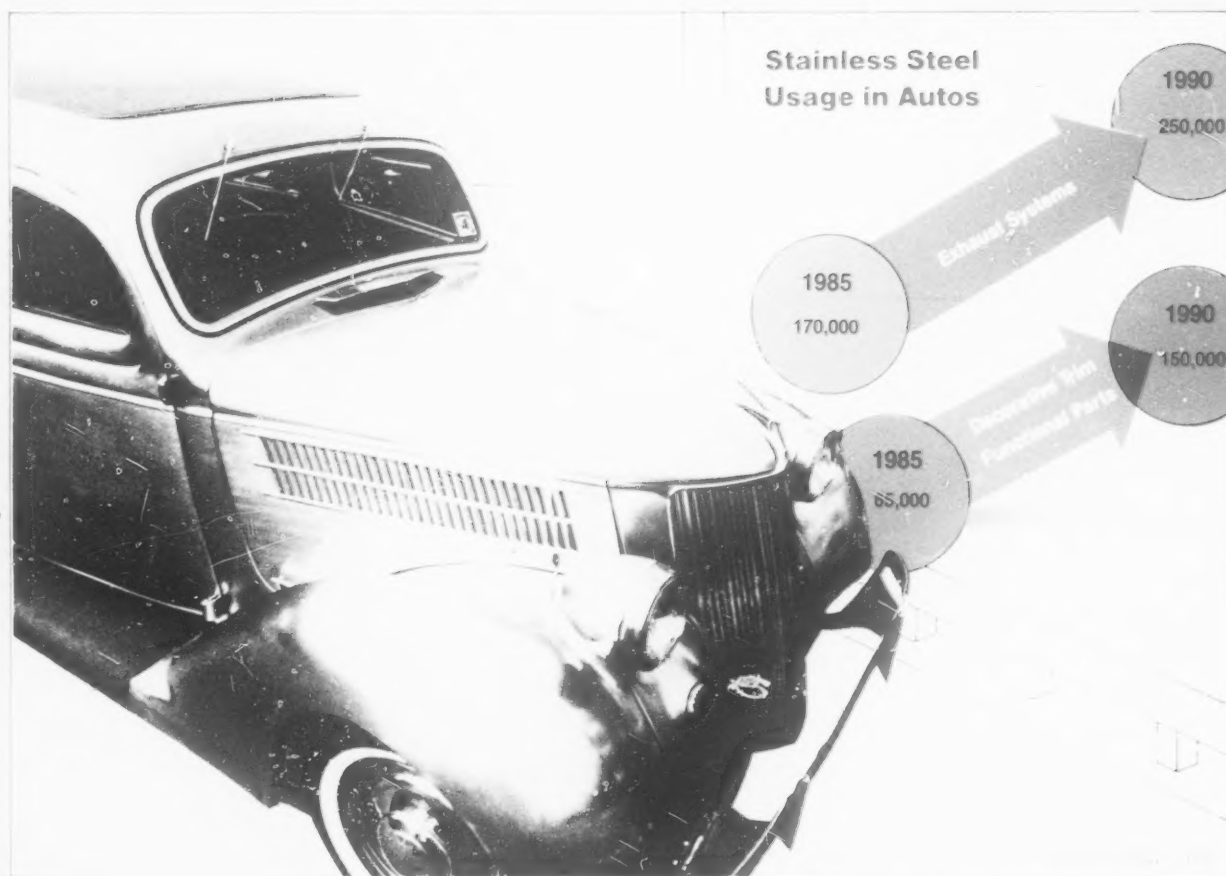
SERVICE CENTERS

SECOND QUARTER FORECAST: BETTER, BUT NOT FOR EVERYBODY

WHO'S MANAGING WELD QUALITY?

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NEWSWATCH



Stainless and galvanized steel make gains on new cars

The luxury cars built at GM's Detroit/Hamtramck plant use more galvanized and stainless steel than any GM cars so far. Both electrogalvanized (EG) and stainless steel have made major gains on several other American 1986 and 1987 models, too.

Detroit/Hamtramck cars use precoated metals for 91 pct of their metal

parts. All exterior parts except the roof use two-side galvanized steel. The cars use Armco's two-side hot-dip Ultrasmooth and will use EC steel as the new EG lines start up this year. GM will buy all its EG steel from four companies with long-term contracts for the material: LTV, Armco, Bethlehem, and Inland.

For the 1987 model year, GM plans to convert more panels to two-side EG steel. In the Chevrolet-Pontiac-Canada (C-P-C)

group, two new models in the GM 25 and GM10 programs, which will start up in fall 1986 and fall 1987, respectively, will use two-side EG steel for all exterior panels except the roof.

All EG steel for GM exterior panels will have a pure-zinc coating of 70 grams/sq m on both sides. The one exception will be the quarter panels, which will have 70 g/sq m of pure zinc outside and 90 g/sq m inside.

The exhibit of the American Iron and Steel

Institute (AISI) at this year's Society of Automotive Engineers (SAE) congress in Detroit displayed bodies in white of the Cadillac Eldorado, one of the four models built at Detroit/Hamtramck; the Honda Accord built in Marysville, Ohio; and the American Motors Jeep Comanche. Detroit/Hamtramck builds the Buick Riviera, Oldsmobile Toronado Brougham, and Cadillac Eldorado (the GM E cars) and the Cadillac Seville (GM's K car). The

Jeep Comanche uses 700 lbs of one- and two-sided galvanized steel.

Detroit/Hamtramck cars also are the only large-volume GM cars that use stainless steel exhaust systems. "GM has no definite plans to use more stainless steel exhaust systems in 1987 or 1988, but eventually we will," said Ronald S. Michalak, manager of manufacturing engineering of the Buick-Oldsmobile-Cadillac group, at the AISI press conference.

At a press conference the next day, however, Allegheny-Ludlum Steel Corp. executives predicted that U.S. vehicles will use 250,000 tons of stainless steel for exhaust systems and 150,000 tons for decorative trim and functional parts by 1990, if 15 million cars and trucks are sold then. In 1985 those figures were 170,000 tons and 65,000 tons, respectively. U.S. stainless steel producers ship about 1.2 million tons annually, so automakers could account for one-third of those shipments if that forecast proves true.

Today's Ford Taurus/Sable, Chevrolet Corvette, and Pontiac Fiero also have stainless exhaust systems, as do 95 pct of current light trucks. All of Chrysler's cars and trucks will have stainless steel exhaust systems by 1987. Chrysler and Ford also use some stainless steel fuel tanks; GM has no plans for them.

At the SAE show, Allegheny-Ludlum displayed two cars with stainless steel bodies—a 1936 Ford sedan (see photo, p.15) and 1967 Lincoln Continental convertible.

Steelworkers at LTV asked to approve new 40-month pact

Negotiators for the United Steelworkers of America and LTV Corp. reached a tentative agreement on a new 40-month contract that cuts wages and benefits by more than \$3 per hour. The union's rank and file members are expected to vote by mail on the new pact.

The new agreement provides the financially troubled steelmaker with an estimated 9 pct cut in the average hourly wages and eliminates cost-of-living adjustments. In



return, the Steelworkers will receive a profit sharing plan that requires total repayment of all concessions at the end of each year, either in cash or a new series of preferred stock convertible into LTV common stock.

In addition, the Steelworkers obtained revisions on contracting out, overtime and grievance procedures.

The negotiators reportedly reached the accord by March 15, the target date the two sides had set for an agreement. The speed

with which talks progressed reflected concern by the parties with the damage that could be done by a lingering strike threat. Contracts between the Steelworkers and many of the major domestic steel producers expire Aug. 1.

For the first time in 30 years, the steel companies will be bargaining separately. Also for the first time, new steel contracts will go to workers at the individual companies for ratification.

Contract talks between LTV and the union began in January. Both sides realized that a prolonged strike threat would invite a surge of steel imports. The large customers have supposedly given the mills until April 1 to either nail down a labor agreement or provide inventory protection against a steel strike. If neither of these is forthcoming, the customers say they will make foreign commitments.

Congressmen pressing Reagan for import limits on Japanese machine tools

Powerful members of Congress are pressing President Reagan to set tough import quotas for Japan to protect the import-battered machine tool industry, but administration sources say he's considering requesting softer voluntary restraints.

The proposed quotas surfaced three years ago when the National Machine Tool Builders Association requested import restraints, and since then foreign machine tools have captured 43 pct of the U.S. market, up from

26.4 pct. The value of Japanese machine tool imports tripled in the same period, jumping from \$535 million to \$1.5 billion last year.

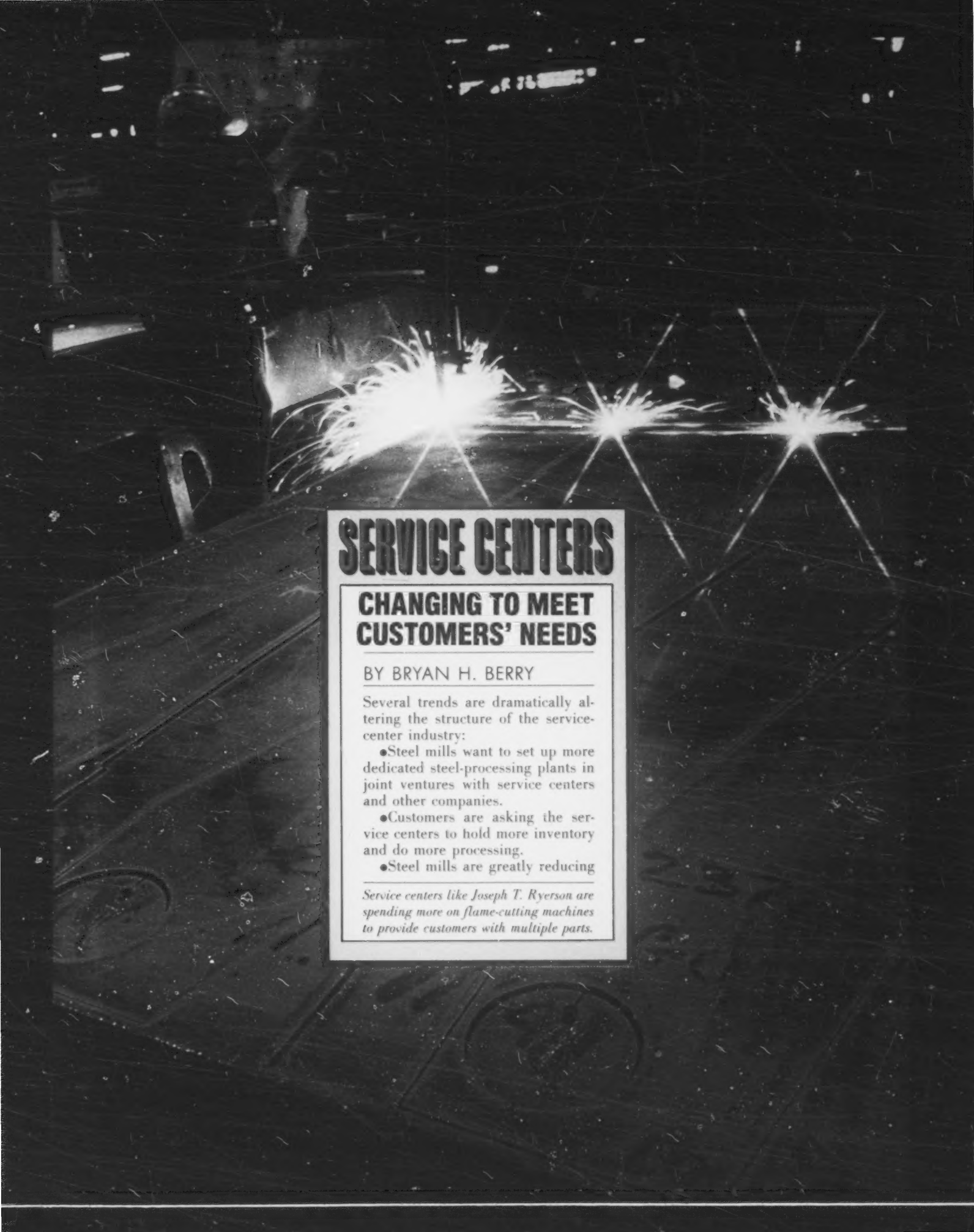
The industry recently gained allies in House Minority Leader Robert H. Michel (R-Ill.) and 26 other Republican House members, who argue that import quotas are needed for national security reasons since foreign manufacturers produce about three-fourths of the state-of-the-art, computer-controlled lathes and machinery centers needed to make weapons ranging from missiles to rifles.

In a letter to Mr. Reagan, they contended, "The very foundation of our national security and economic well-being depend on the skill and capacity of the machine tool industry. There is a serious threat to the national security posed by our growing dependence on imports for high-technology defense-sensitive machinery."

They have an ally in Commerce Secretary Malcolm Baldrige, who two years ago proposed that strict limits be put on machine tool imports for national security reasons. Mr. Baldrige called for banning 90 pct of all imports, which would have shut Japan out of the U.S. market.

However, sources say, advocates of free trade in the Administration kept that plan from going to the full Cabinet. Early this year Mr. Baldrige asked Donald T. Regan, White House chief of staff, to support the less ambitious program of requesting voluntary quotas from the Japanese.

(Cont. on p. 18.)

A black and white photograph of a steel mill. In the center, a bright, starburst-like spark is emanating from a cutting process, likely flame-cutting. The background is dark and industrial, with various structures and lights visible. The overall scene is dramatic and highlights the industrial nature of the service centers discussed in the article.

SERVICE CENTERS

CHANGING TO MEET CUSTOMERS' NEEDS

BY BRYAN H. BERRY

Several trends are dramatically altering the structure of the service-center industry:

- Steel mills want to set up more dedicated steel-processing plants in joint ventures with service centers and other companies.

- Customers are asking the service centers to hold more inventory and do more processing.

- Steel mills are greatly reducing

Service centers like Joseph T. Ryerson are spending more on flame-cutting machines to provide customers with multiple parts.

SERVICE CENTERS

the price discounts they used to give service centers. No longer can service centers earn their living simply by selling discounted metals. Now the quality of the value they add to the metal is what will distinguish one service center from another.

"The margin for error in this business is thinner today than at any time I can remember," said Andrew G. Sharkey, president of the Cleveland-based Steel Service Center Institute (SSCI).

"There are too many people in this business," bluntly warned one service-center president. Several service-center executives told *Iron Age* they expect to see service centers contract or fold in today's heightened competition.

Metalworking industries are scrutinizing two key joint ventures that could point the way to a number of similar projects:

—United States Steel Corp. and Worthington Industries are jointly building a plant in Jackson, Mich., to slit coils and shear first-operation blanks for the auto, appliance, and other industries. The \$12 million plant, which is scheduled to start up this August, has a capacity of 600,000 tons per year.

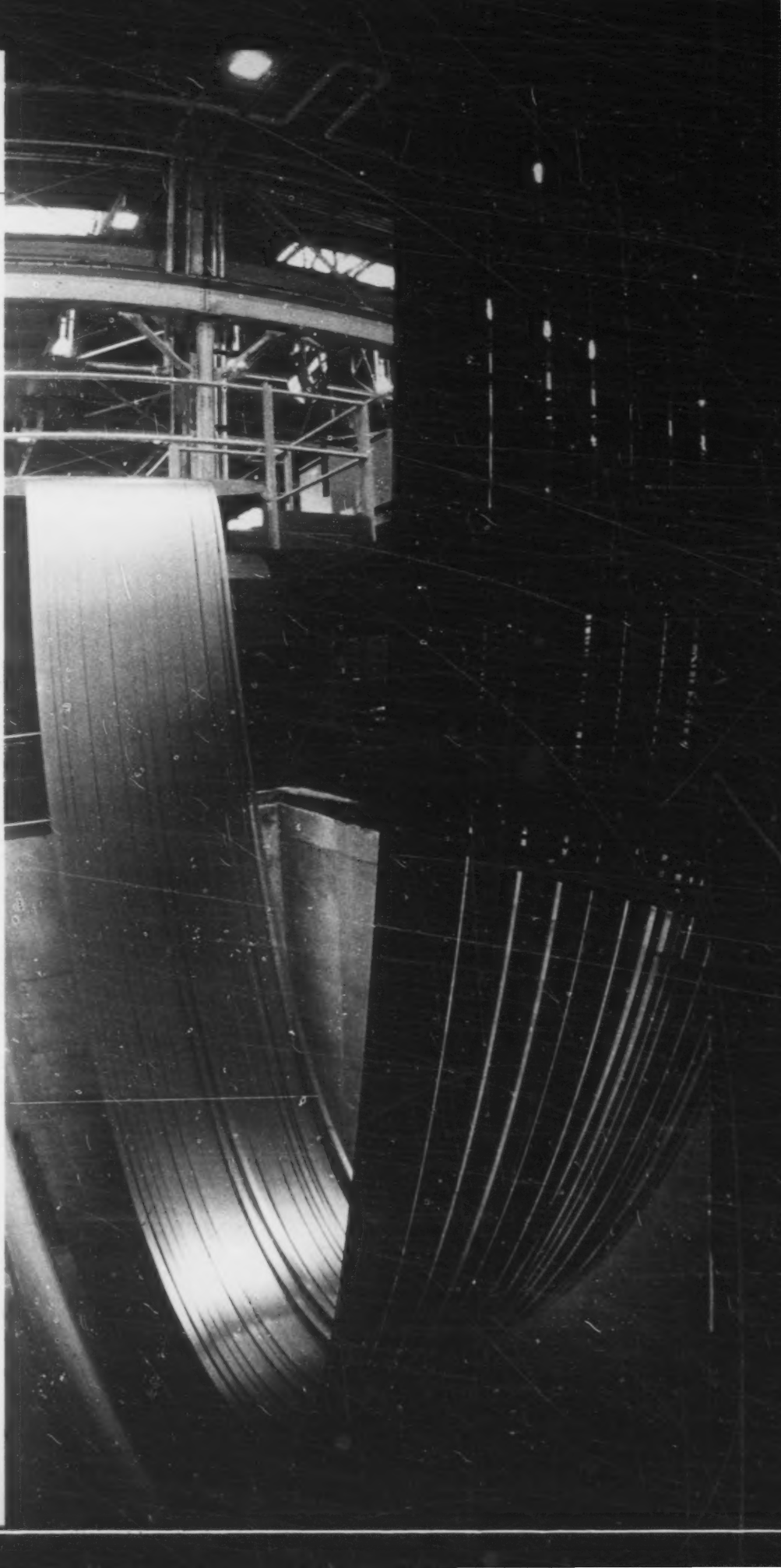
—Since last summer, Kastle Steel Corp. (Dearborn, Mich.) has been blanking steel for all the body panels used on the Buick LeSabre. Both the Kastle and Buick plants are in Flint, Mich.

It's too early to say how successful these two ventures will prove to be. But several other companies already are planning similar projects.

Armco and C. Itoh & Co. plan to build several jointly owned processing centers to handle mainly Armco steel. One plant in Tipp City, Ohio, will do slitting and blanking.

U.S. Steel could form similar joint ventures to build other processing plants in Chicago and elsewhere. Inland Steel and Joseph T. Ryerson & Son, Inc., Inland's service-center subsidiary, could jointly build a processing plant. National

Service centers are installing equipment to do more processing. This new slitter at Ryerson can slit 72-in. wide steel coil into widths as narrow as one in.



Steel and Weirton Steel are both looking at similar projects.

"Steel mills that can control processing will do better than steel mills that don't," commented W. Gordon Kay, president and CEO of J.M. Tull Industries. "Mills can coordinate production schedules, deliveries, and scrap handling better with processors they own. I expect all the steel mills to look at arrangements similar to the U.S. Steel/Worthington one."

"Service centers should consider joint ventures with steel mills to set up processing plants dedicated to one, two, or three mills and a large-volume end-user," said Sheldon Arnot, Bethlehem Steel executive vice president.

Many steel-mill and service-center executives see possibilities for ventures between the two industries.

One big reason is that service centers' average \$12 labor cost is one-half that of the steel mills'.

Steel mills and service centers generally need to work together better than in the past, says Mr. Arnot. Service centers too often have been reluctant to share information about their customers with the mills. They've feared that the mills would steal their customers—an unfounded fear, say steel executives.

When service centers tell the mills how the steel will be used, said Mr. Arnot, the mills can tailor the steel's metallurgy to its application.

The simplest way for a steelmaker to know how his steel will be used is to sell directly to the end-user. And for large-volume customers like the auto, appliance, and farm-equipment industries, that's the direction steel mills are heading.

In some cases, that's the only way the mills can satisfy the increasing demand by customers that the same mill supply all the steel for each different part. General Motors has taken the lead in reducing the number of steel suppliers per car part.

By selling steel directly to the auto plant, the steel mill usurps the service center's traditional role as steel salesman. Instead, the mills are offering service centers the new role of dedicated processor.

When LTV's new electrogalvan-

izing (EG) line starts up this month, LTV will supply all the exterior body steel for the Buick LeSabre. LTV and Buick are contracting the blanking to Kasle, which will blank all the body panels but never own the steel. LTV retains ownership of the steel until it reaches Buick.

On the other hand, most metal goes not to large-volume users like automakers but instead to small-volume manufacturers. For these customers the steel mills are increasingly depending on the service centers to sell the steel.

From 1978 to 1985, the percentage of carbon steel shipped by American steel mills to service centers rose dramatically: from 21 to 30 pct (see table, p.32). Bethlehem's Mr. Arnot sees that figure approaching 50 pct over the next 20 years.

Automotive Blanking

Still unclear is whether arrangements like the LTV/Kasle/Buick venture increase overall manufacturing efficiencies. On the face of it, you'd think not: Wouldn't it be more efficient for Buick to stamp blanks in the same plant it final-stamps body panels?

Apparently not, if Buick's past blanking efficiencies are any guide. Kasle Steel claims it's reducing blanking rejects by 50-75 pct compared with Buick's performance. Plus, Kasle's labor costs are lower.

"Our job is to eliminate defects," said Kasle Steel President Leonard Kasle. "Every shipment we send to the manufacturer must be totally usable." The cost of Kasle Steel's contract, says Mr. Kasle, is more than offset by the reduced number of defective blanks.

Another reason for Kasle's service, says Mr. Kasle, is Buick's use of all electrogalvanized steel for the outer body panels. All the coated steel must be washed in a spotless environment. Kasle washes some of the Buick steel twice—before and after blanking—to remove all lint.

Also, proper handling of EG steel is more important than for uncoated steel. Uncoated steel that's scratched or burred can be metal-finished and re-used. Not so with galvanized steel.

Kasle's Flint Auto Blankers Division certainly is scrupulously clean. A machine-vision system scrutinizes the steel coil, which then is washed, dried, and oiled without solvents or brush rolls ever touching the steel. Cincinnati-Milacron robots lift the blanks with vacuum suction cups.

The \$8 million facility also blanks steel from eight other steel mills for other customers, including Ford, Chrysler, and other GM plants. Buick eventually will account for about 55,000 tons of the plant's 100,000 ton capacity.

One top purchasing executive at Ford, however, pooch-poochs the arrangement. "I can't believe the prices GM is paying for blanking at Buick," he told *Iron Age*. "I'm hearing GM pays \$75-115/ton more under the new arrangement than when Buick did the blanking."

To be sure, Buick's blanking equipment was antiquated. Faced with the options of paying money to Kasle or to a machine-tool builder, the automaker chose the former.

Buick itself would not comment on the new blanking set-up. "We want to take a good long look at how this works before we comment on it," said a Buick spokesman.

Ford does little purchasing from service centers, explained the Ford purchasing executive. Chrysler is more interested than Ford in contracting blanking to service centers, because Chrysler has used up all the floor space in its three stamping plants. Chrysler now faces a choice somewhat similar to Buick's: Should it invest \$75-odd-million in a new stamping plant or pay smaller fees to service-center contractors?

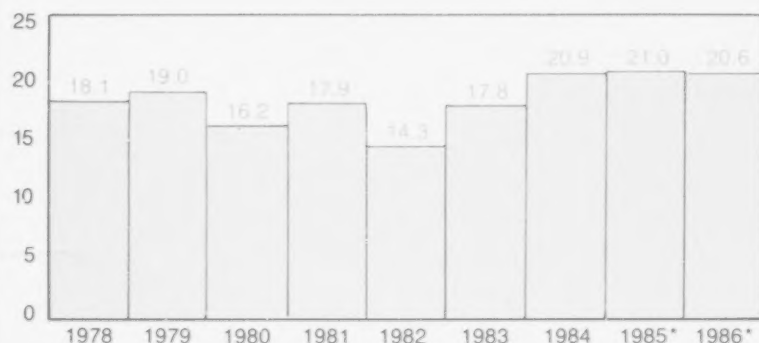
General Motors, meanwhile, is considering contracting out blanking for at least three other plants: the Chevrolet-Pontiac-Canada (C-P-C) plants at Oshawa, Ont., and Parma, Ohio; and the Truck and Bus plant at Indianapolis. A dozen companies are bidding for the blanking order at Oshawa, which will involve 100,000 tons of steel for outer and inner panels. Budd Co.'s stamping plants also are considering contracting out blanking.

One likely competitor for the GM Parma and Indianapolis orders is

SERVICE CENTERS

Service Center Steel Shipments May Drop Slightly in 1986

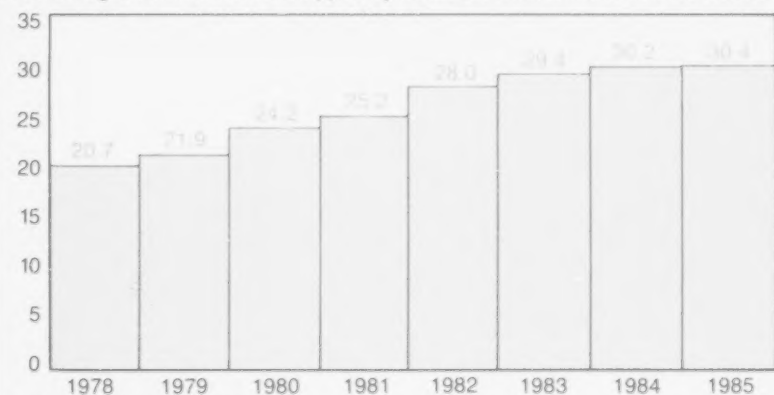
Industrial Steel Products Shipped by Service Centers (millions of tons)



Source: Steel Service Center Institute
* Iron Age estimates

Steel Mills Keep Shipping More Steel to Service Centers

Percentage of Carbon Steel Shipped by Domestic Steel Mills to Service Centers



Source: American Iron and Steel Institute

Marubeni America, the \$12 billion subsidiary of Japan's \$53 billion Marubeni Corp., a trading company, Marubeni Corp. is part of the huge Fuyo Group, a consortium of 29 Japanese companies that includes automaker Nissan and steelmaker Nippon Kokan. Marubeni is considering both building a plant devoted just to blanking and acquiring one to four more service centers in the Midwest.

Last year Marubeni bought Bleim Steel, a Toledo service center that serves mainly automakers in Michigan and Ohio. No doubt Marubeni would like to acquire service centers

that can serve the Japanese automakers in the U.S.: Honda in Ohio, Nissan in Tennessee, and eventually Mazda in Michigan and Mitsubishi-Chrysler in Illinois.

Marubeni also is considering setting up computer links between a service center and steel mill and coordinating production at those two plants with that of a major end-user, probably in the auto industry. In Japan, steel mills supplying such major automakers as Toyota and Nissan synchronize their steelmaking schedules with the automakers'. The service centers storing steel for the

automakers tend to be owned by steel and auto companies and banks.

One Marubeni executive estimates that it will be two or three years before American steel mills can synchronize their schedules for just-in-time deliveries to major end-users. "We think we can improve the quality of U.S. service centers with Japanese know-how," he said.

"Everybody's talking about just-in-time manufacturing now," commented Leonard Kasle, "and nobody's doing it. But end-users and steel mills see the value of having stable schedules and coordinating them. It takes time to change corporations' internal structure.

"In two or three years, everybody who will be staying in business will use just-in-time manufacturing."

Kasle Steel plans to handle and deliver all steel for Buick just-in-time by the end of this year. As of today, little is shipped that way.

Partnerships

Though steel mills and service centers must work closer together to coordinate manufacturing, most observers foresee little direct vertical integration between the industries.

"I do not see vertical integration of service centers within the steel industry as a strong long-term trend," said SSCI President Sharkey. "Instead, I see a long-term trend toward more outsourcing by the steel mills, who want more flexibility.

"On the other hand, I think we'll see a tremendous acceleration of partnerships, joint ventures, and arrangements that don't involve direct ownership of one company by another. You'll see mills coming together with other mills, mills with service centers, service centers with customers, and customers with mills as companies try to meld the strengths of two or more parties to meet specific needs in the marketplace."

"I foresee more trading between the service centers, so the overall supply system will be more efficient," said Henry B. Peterson, president of U.S. Steel Supply Division, a subsidiary of U.S. Steel Corp. "Not everyone can afford to have the same pile of steel lying on his floor."

(Cont. on p. 35)

Dragon

SERVICE CENTERS

Two major steel mills now are in the process of divesting themselves of their service-center units. National Intergroup wants to sell not only its half ownership of National Steel but also its 24 service centers. Marubeni would be an obvious candidate to buy at least some of National's service centers: Both Marubeni and Nippon Kokan, which owns the other half of National Steel, belong to the Fuyo Group.

Bethlehem Steel is selling J.M. Tull Industries, the network of 12 Southeastern service centers headquartered in Norcross, Ga. Bethlehem bought Tull for about \$95 million in June 1985 and wanted to expand the service-center company. That plan was scotched when the steelmaker suffered much greater losses in the second half of 1985 than it had expected. Bethlehem lost \$196 million in all of 1985.

Still, steel mills should consider owning service centers for several reasons, said Tull President Kay:

- Service-center profits are not large but are much more predictable than steel mills' cyclical earnings;

- Service centers are not as capital-intensive as the mills, and

- Service centers, which distribute plastic, aluminum, stainless steel, and other materials, aren't as dependent on the fortunes of carbon steel.

Tull earned \$6 million on sales of \$195 million in 1984 and also made a profit in 1985.

The heads of at least three major service-center companies also have expressed an interest in owning a Southeastern plant. Ryerson has purchased property near Atlanta where it might begin building a plant this year.

U.S. Steel Supply Div. may shut down one Northern plant and open up one Southern facility. "Everybody has to look at the Southeast and Southwest," said Mr. Peterson. "That's where the growth is."

A.M. Castle & Co. (Franklin Park, Ill.) added a plant in Philadelphia in 1984 and in Charlotte, N.C., in 1985 and will add another one in Rochester, N.Y., this year. "We could add even more plants this year, or expand existing ones," said

A.M. Castle Chairman Michael Simpson. "The only area where we have a significant void is the Southeast, which is an attractive market."

Kilsby-Roberts (Brea, Calif.) is actively looking for a new plant in Philadelphia, New York, or New Jersey this year. The company already has signed contracts to acquire plants in Cleveland and England this year.

O'Neal Steel (Birmingham, Ala.) last year bought Shelby Steel, which has one Kentucky and three Indiana plants. O'Neal could buy more plants this year. "We're always looking at acquisitions in areas contiguous to the facilities we have," said O'Neal President James Wall.

O'Neal is a partial owner of Tuscaloosa (Ala.) Steel, which recently began producing hot-rolled plate using a new technology developed by Tippins, Inc. (Pittsburgh). Other co-owners of Tuscaloosa are British Steel, which will supply 30-ton jumbo continuous-cast slabs; and American Cast Iron & Pipe Co. (Acipco, Birmingham), which will distribute pipe made from Tuscaloosa's steel. O'Neal will use the steel to make and sell plate and band.

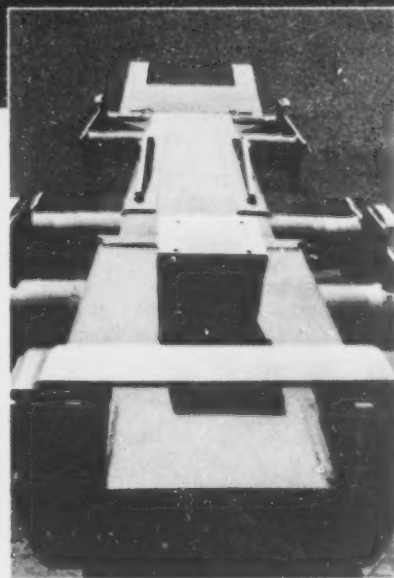
O'Neal and Tuscaloosa will have the traditional arm's-length relationship that Ryerson and U.S. Steel Supply have with Inland and U.S. Steel. In all three instances, the two companies have a business relationship. But the service centers do not get involved in actual steelmaking and distribute many other products from other mills and to areas the partner mills don't serve.

Adding Value

The area of most growth for service centers is doing processing operations that the end-users used to do. Service centers already do some processing to 80 pct of the products they ship. That figure varies from company to company. Ryerson, for example, does some processing to 50 pct of its products, though that figure is rising.

Lack of floor space is another reason customers ask service centers to do more processing, particularly in the kind of flush times that the auto

(Continued on p. 39.)



ALGOMA QT 700 (QT100). High Strength Quenched and Tempered steel forms the undercarriage of the Husky 8

SERVICE CENTERS

and other industries now are having. Service centers now are doing more slitting, blanking, shearing, burning, and cutting to length.

Some service centers, however, prefer not to spend money on the equipment for increased processing. "Our company isn't interested in setting up a blanking operation like Kasle's," said Mr. Peterson of U.S. Steel Supply. "That involves significant capital expenditures. Instead, we'll do more processing of plate: more burning, bending, rolling, first-stage welding."

Sales and Spending

The SSCI expects industrial steel shipments by service centers to drop slightly from the record 21 million tons in 1985 to 20.6 million tons this year (see table p.32). But sales in dollars should be up in 1986. That should raise this year's profits slightly above last year's.

Prices and inventory values fell 10-12 pct from the fourth quarter of 1984 to the fourth quarter of 1985. That's why sales volumes declined even as tonnages rose in 1985.

In 1986, however, the steel mills are raising prices by about 5 pct for structural and 9 pct for flat-rolled products—and reducing the discounts that used to favor service centers. That means that service centers no longer will be able to offer their customers the kinds of discounts they did in the past.

On the positive side, more stable mill prices mean that service-center inventory values should hold firm or increase slightly in 1986. But gone are the days when service centers could count on making money simply by stockpiling material and watching prices rise as time passed.

This year the steel mills may raise their prices faster than the service centers can raise their own selling prices, predicts SSCI President Sharkey. That will put more pressure on service centers to find new ways to add value to the metal.

To increase their flexibility to changes in customer demand, service centers are leasing rather than buying additional equipment. Most of the capital spending planned by service-center companies in 1986

will go for upgrading equipment, not expanding floor space.

As in past years, much of service centers' spending will go for computer information systems. More service centers are setting up computer links so their customers will have real-time access to their stocks.

Another trend is the increased use of sophisticated instruments and controls to ensure closer tolerances than in the past. Service centers also are making incremental improvements in material handling.

In 1985 Ryerson spent \$25 million on capital equipment, including: (1) numerically controlled equipment that cuts delivery time by as much as one month; (2) a plasma/punch machine that can cut, punch, drill, tap, and scribe in one CNC set up (see photo, p. 29); and (3) high-speed slitting equipment to produce tighter steel coils with closer tolerances and better finishes.

Ryerson President Foster expects his company's sales to be up at least 3 pct from 1985's \$1.06 billion—almost a third of Inland Steel's revenues. Ryerson has budgeted more money for capital spending this year, too, though part of that could be used for the new plant in Atlanta.

A.M. Castle shipped 230,000 tons of metal in 1985 but had a return on sales that was less than the industry average of 2 pct. The company will continue its strategy of moving from "mass" to "class" markets. In mass markets, said A.M. Castle Chairman Simpson, the lowest price wins the order 90 pct of the time. In class markets, quality and performance distinguish one service center from another.

The sales and capital spending of Earle M. Jorgensen Co., says company President John W. Jorgensen, will be about the same in 1986 as in 1985. The company's aerospace customers are doing well, but the oil-tool industry remains depressed.

Likewise, Precision Steel Warehouse (Franklin Park, Ill.) will have about the same sales and capital spending in 1986 as in 1985, said company President David G. Hillstrom. This month it will install a \$125,000 Reusch oscillating coil-winding and welding machine.

William Gimbel of Reliance Steel & Aluminum expects his company's sales to rise by 10 pct from 1985 to 1986 while tonnage rises 3-4 pct. The California-based company, which handles 25 pct aluminum and 75 pct steel, plans \$5 million in capital spending this year, down from \$7 million last year.

Metal Goods President John Horstmeyer expects his company's sales to be higher in 1986 than 1985. The company's leading products are stainless steel.

Kilsby-Roberts will increase sales by 7 pct from 1985 to 1986, company President Neven Hulsey told *Iron Age*. "Half that increase will be due to rising shipments, the other half to firming prices," he said.

Much of Kilsby-Roberts' capital spending this year will go to upgrade its new Cleveland plant. Almost all Kilsby-Roberts' products now are tubing. The Cleveland plant, which handles bar, could lead the company into other products, said Mr. Hulsey.

Ziv Steel Co., based in Livonia, Mich., is one of the leading distributors of high-alloy tool steel. The company had sales of \$14 million in 1985 and expects the same in 1986.

Like other service centers, Ziv Steel is trying to refine its customer base and not sell all steels to all customers. The company plans to begin requiring minimum orders of \$50, which will motivate customers to consolidate small orders. "Service centers must concentrate much more on marketing and merchandising than in the past," company president Alvin R. Ziv told *Iron Age*.

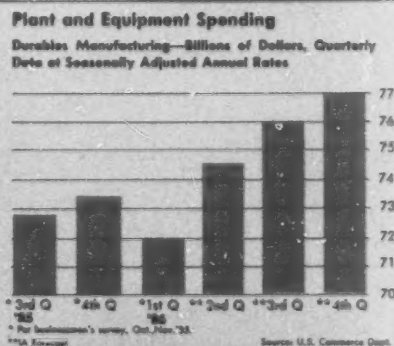
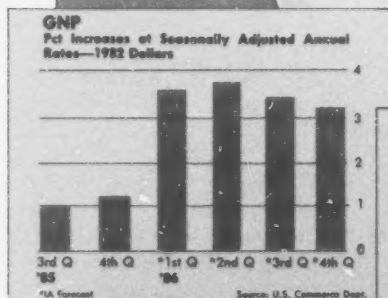
As service centers avoided carrying costly stock last year, the depot stocks of both foreign and domestic mills grew steadily. In some cases small service centers found the stocks to be quick, convenient sources of steel.

But SSCI President Sharkey warns strongly against the trend. "The service centers are the sourcing, inventory, processing, information, and distribution experts," said Mr. Sharkey. "We'd better be careful not to abdicate our functions in response to any short-term market pressures." □

SECOND QUARTER REPORT:

BETTER... BUT NOT FOR EVERYBODY

The golden eggs of economic growth this year will not be shared by all



BY JOHN D. BAXTER

As far as the overall economy goes, growth this year will be stronger than last year. In 1985, the U.S. economy grew by 2.3 pct. This year, growth of about 3.5 pct looks like a good bet.

That's not boom growth by any means. But considering that the current business expansion is now 41 months old, that is still vigorous growth. This recovery is now the second longest ever achieved in post-World War II peacetime history. It should be running tired now, but it seems to be picking up steam.

Still, not all sectors of the economy are going to be swept along by the recovery tide. At least, not to the same extent as the overall economy. For one, continuing huge imports will bend down the growth curve for a number of basic goods manufacturing industries. Included among those industries, will be many producers of capital goods.

First, a look at the bright side—why the economy as a whole will be strong this year.

For a starter, interest rates have been cooling. Over the past 18 months they have declined by almost 4 percentage points. At the same time, there is plenty of money available for corporate borrowers. Money supply growth last year of more than 12 pct was the fastest for any year in postwar history.

But all the big money supply and all the big borrowing hasn't pushed up general price levels. Inflation remains in the 3 pct to 4 pct range.

Then, on top of all the softness in interest rates and general price levels, oil prices have tumbled lately. At the time of this writing, oil prices have dropped from \$25 a barrel in late 1985 to under \$12. Some oil analysts look for single-digit prices on oil before a bottom is hit.

One economist has estimated that lower oil prices have released \$50 billion of buying power for other goods and for personal savings.

More Good News

Add another spark lighting the economic fireworks in 1986: The

dollar's trade-weighted value has plunged by 27 pct since February of last year. So far, as will be seen, the dollar decline has not yet stemmed the tide of imports. But it should help, possibly starting in the closing quarter of the year. At any rate, dollar-cooling has already become a confidence-builder in the economy.

Too, the economy will get a big push from inventory building this year. In 1985, inventories grew by only \$9 billion following a \$67 billion buildup the previous year. This marked the sharpest slowing of stock buildup for any 12-month period since the end of World War II.

The slack situation in inventories points to a strong 'catch-up' this year. The consensus of a number of economists calls for a \$20 billion additions to business inventories this year. In other words, the economy in 1986 will get an \$11 billion bigger boost from inventory building than it got last year.

Any outlook made about the economy, of course, has to include Mr. Big—the consumer. After all, he or she wields two-thirds of all buying power in the economy and is the end-product customer for most of the goods produced by industry.

Well, the consumer's passion to spend has cooled a bit lately, according to recent surveys taken by the University of Michigan and The Conference Board. However, a Conference Board analyst noted, "The comforting economic fact is that consumer confidence continues to hold at relatively high levels despite the less-than-inspiring performance by the overall economy."

That "less-than-inspiring performance" refers chiefly to U.S. economic growth of 2.3 pct last year following a super-hot 6.6 pct growth pace the year before.

It seems reasonable to expect that the consumer will make a comeback in attitude and spending inclinations as the 1986 economy moves at a quicker pace than last year.

With all those 'pluses' helping, it is hard to see anything but more recovery—and a stronger pace of recovery—this year. As noted, the current expansion is an old-timer.

At 41 months in duration, it has been surpassed in peacetime years only by the 58-month expansion from March 1975 to January 1980.

Dark Clouds

In the garden party setting for 1986, there are unwanted guests. And those guests—huge imports and a plant spending lag—threaten to spoil the recovery party for U.S. capital goods producers and other basic goods manufacturers.

The real menace remains imports. As the chart here shows, during 1985 U.S. imports of manufactured goods exceeded exports by more than \$100 billion. Spurred on by a strong dollar, the recent years' trend in this trade deficit has been from bad to worse.

The dollar has weakened. As of this month, it is down in exchange value by almost 27 pct. And the cooling of the dollar has been going on since February of last year. Still, most economists say it will take up to 18 months of a cooling dollar before any good signs show up in U.S. trade figures. So, this year could be another bumpy one for those industries up against heavy foreign competition, mostly producers of basic industrial goods.

A second thump will likely be felt in basic goods lines this year. A number of economists and business executives have projected either a slowed pace, or actual cutbacks, in spending for new plant and equipment this year.

The U.S. Commerce Dept., in its quarterly survey of business executives in the October-November period, found that capital spending this year would be a wash. In real terms, no change from last year was noted. Also, at least two large-scale private surveys show actual trimming of business capital spending, down from 2 pct to 6 pct from last year.

Not only will U.S. industry this year be spending less for new plant and equipment, but much of that spending will go for capital goods from overseas producers.

That's a double dose of bad news for U.S. basic goods manufacturers. Home-produced capital equipment

is at the heart of their business.

There is still a third hard-to-swallow dose: Domestic suppliers to U.S. capital goods producers will see their orders slow, or even fall, as less capital equipment is made here. Each imported capital goods item is made of materials, parts and components that won't be made here.

Those are the reasons why a slowing in domestic plant investment can be so devastating to U.S. basic goods manufacturers.

In turn, those are also the reasons why U.S. basic goods manufacturers will not likely fully share in the expected faster economic growth this year.

There is another force shaping prospects for manufacturing industries this year. Call it de-industrialization, or whatever, but manufacturing industries in this country are caught up in a maelstrom of change. Manufacturers are turning to make-or-buy decisions in a big way—and often electing to buy rather than make products.

And those decisions frequently mean buying from overseas suppliers. Many manufacturers, instead of just sourcing parts from overseas, are subcontracting entire operations to foreign suppliers, or in many cases, giving up the making of end products altogether in favor of simply importing them.

Some have carried these moves to such an extent that they are now closer to being distributors than manufacturers. U.S. manufacturers themselves are becoming major importers to this country.

Many manufacturers, instead of buying new equipment to make new products, acquire companies already making such products. Others are electing to buy back big chunks of their own outstanding stock with corporate funds rather than new equipment.

As far as business forecasting goes, it is not clear how this great new ferment in manufacturing is affecting the economy. Clearly, though, it is a sweeping trend to be watched with care—not by just economists, but by executives at individual companies.

STEEL

The steel industry may be moving out of the pit it has occupied for the past four years.

The better outlook stems from a significant change in the international trade situation. Currency changes, import restraints and protectionist sentiment are making for more favorable trade trends.

Both direct imports of steel and indirect imports of autos, machinery and other products made of steel should be affected.

Hard evidence of a steel upturn is still skimpy. Steel shipments in the first quarter of 1986 will be up about 500,000 tons from both the first and fourth quarters of 1985. Further gains are indicated for the second quarter.

Even more significant, the steel price increases proposed for January are being supported, at least partly. Domestic and foreign prices are up.

There are promising signs, but no one is going overboard on the idea of a decisive steel surge. There are fears that the threat of a steel strike Aug. 1 is pumping artificial and temporary strength into the market. Most officials are still saying steel shipments will be down a little from the 72.7 million tons of 1985.

People are cautious, but there could be a dramatic change underway. What has killed steel and all manufacturing in the last four years has been rising import volume.

Steel imports zoomed up from 15.5 million tons in 1980 to 26 million tons in 1984. Also up were imports of manufactured products. These represented 13 million tons of steel in 1984 and probably even more in 1985. The direct and indirect steel imports have been running close to 40 million tons a year.

Direct steel imports seem to be easing. The 24.3 million tons imported in 1985 was down about 2 million from 1984. The 1985 total

reflected heavy imports at the start of the year. In the last four months reported, imports were down to an annual rate of about 20 million tons.

The voluntary restraints are starting to have an effect. The most important effect may be to reduce the incentive of foreign producers to cut prices. This would be great news to domestic producers who say price problems stem from imports.

Apart from quantity limits, foreign producers may be influenced in their pricing by the effect of currency changes on their delivered costs. From March 1985 to late February 1986, the Japanese yen went from 258 to the dollar to 180.

That meant that a Japanese hot band which sold for \$250 a ton last March should now sell for \$350 a ton. With the yen at 190, said one official, the delivered cost of Japanese steel is \$15 a ton higher than the delivered cost of domestic steel.

The impact on manufactured products is similar. A Japanese car that sold for \$10,000 in March 1985 should now sell for \$14,000. The Japanese can elect to absorb all or part of the added cost, but the currency swing has some effect.

If economics have anything at all to do with international trade, the position of American industry should be improving. For American steel companies, the complicating factor right now is the strike threat. The mills are hoping to eliminate this threat by negotiating new labor agreements by April 1.

If there isn't an early agreement, there will probably be some hedging against a strike. Some of the hedging will be done by the mills, themselves. Two of the big auto companies have reportedly told steel companies to have 60-days extra supply on hand by Aug. 1. The other hedge would be in the form of commitments to buy foreign steel.

There are promising signs, but no one is going overboard on the idea of a decisive steel surge.

Steel Shipments

In Millions of Tons



Source: AISI

*1A estimate

NONFERROUS

There were a few more pluses working for the nonferrous metals companies in the first quarter than were a year earlier.

One was the weaker U.S. dollar, which was taking the edge off import competition. Another was the generally low level of inventories at the producer level (except for lead) and low consumer stocks as well.

Consumption continues to run at a fairly good clip and, if it holds up, the producers should be in a position to cash in as the second quarter progresses. Price improvement in aluminum and copper was a bit thin in the initial period, however, in part because the unsettled tin situation continued to hang over hedge market values for both metals.

Major U.S. aluminum and copper producers must renegotiate wage contracts this spring and this has prompted some consumers to reconsider their lean inventory policies.

There was a surge in the order rate for aluminum items early in the first quarter, especially for aluminum ingot, but also for can stock and other flat rolled products. The aluminum industry's bookings usually are strong at the start of the year, but this year's kick-off was unusually strong. The Aluminum Association estimated January orders at 2.25 billion lbs, which was 53 pct better than January 1985.

The industry's price structure was showing signs of firming in the first quarter. The market for can stock promises to be a hotly contested one this year, however, with more capacity coming onstream and moving through qualification runs. U.S. aluminum industry forecasts for can stock shipments, meanwhile, range from a modest gain to a modest decline. That would be the first in this market since 1975.

Aluminum, copper and nickel producers generally look for an up-

trend in consumption as the economies of industrialized and developing countries start realizing the benefits of the price slide for crude oil. Inco, Ltd., recently estimated that the cost of nickel production comes down between 2 and 4¢ a lb for each \$1 a barrel drop in the price of crude oil. This could tend to encourage more nickel production, but the effect of lower oil prices on consuming industries should more than offset it, Inco said.

Nickel prices on the London Metal Exchange going into March were about where they were at the start of the year, but were up smartly from February lows.

Copper deliveries by U.S. refineries also got off to a good start in 1986. There also were sharp drops in hedge market inventories as the first quarter progressed. Producer and hedge market inventories at the start of the year were well below levels at the start of 1983, the last copper wage renegotiation year.

Zinc demand remained firm in the first quarter and the U.S. producers continued to whittle away at their scarcely burdensome inventory. Automotive demand was firm for both die casting and galvanizing grades.

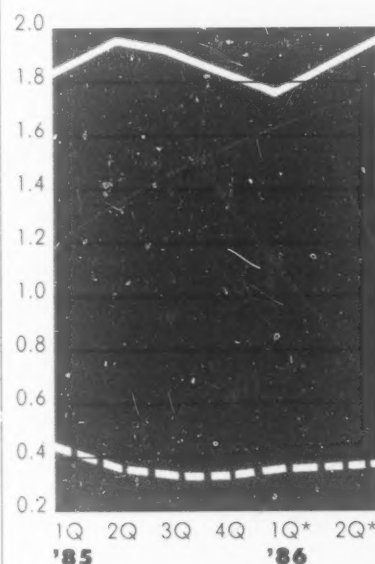
Primary producers of some base metals are feeling increased pressure from local secondary suppliers. According to the National Association of Recycling Industries (NARI), scrap claimed larger shares of the domestic market for aluminum, copper and stainless steel last year.

Despite heavy export volume, scrap aluminum's share jumped to 35.6 pct last year from 32.9 pct in 1984. For copper and copper-base alloys, the increase was from 44.1 pct to 45.2 pct. Stainless steel scrap was up more than three points to 46.7 pct (applying its own pressure to the price of primary nickel).

Aluminum, copper and nickel producers look for an uptrend in consumption because of the crude oil price slide.

Nonferrous Metals Shipments

In Millions of Short Tons



— Aluminum

— Copper

Source: American Bureau of Metal Statistics

Aluminum Assn

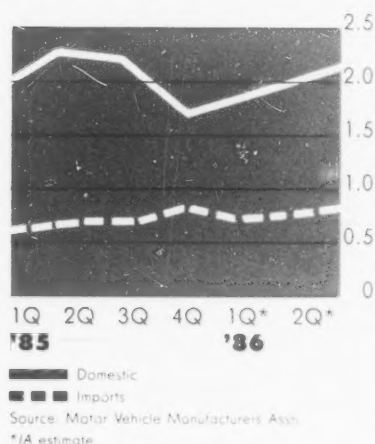
*1A estimate

AUTOMOTIVE; HEAVY EQUIPMENT

Domestic automakers plan to build 2.1 million cars in the second quarter this year.

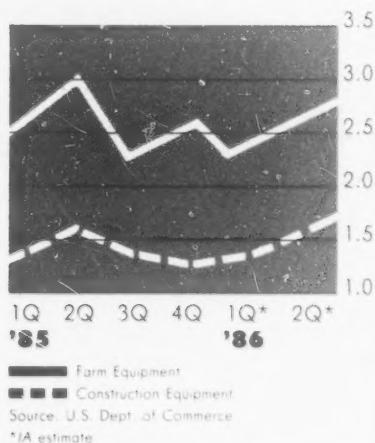
Automotive Sales

In Millions of Units



Heavy Equipment Shipment

In Billions of Dollars



AUTOMOTIVE—Domestic automakers likely will ship 2.1 million cars in the second quarter. That's 200,000 fewer units than in the second quarter of 1985 but 200,000 more units than in the first quarter of 1986. Shipments of imported cars likely will rise from 700,000 units in the second quarter of 1985 to 800,000 units in the same period this year.

Domestic automakers plan to build 2.1 million cars in the second quarter this year. Sales analysts expect dealers to have about a 78-day supply of domestic cars as the second quarter begins and an 83-day supply as it ends. A 65-day supply is considered ideal.

Sales of domestic cars began a slow decline in the second half of 1985 and will probably hit bottom in the second half of 1986 or early 1987. "This is just a moderate downturn in car sales," explained the sales analyst for one Big 3 automaker. "I expect sales to pick up again in 1987."

As sales have slowed, automakers have been offering a variety of incentives. GM, Ford, Chrysler, and American Motors all have been offering either discount financing or rebates on many of their cars.

The discounts are heaviest for the smallest cars, which the automakers are having the most trouble selling. As the price of crude oil has dropped, gasoline prices at the pump continue to drop. The least expensive brands of unleaded gasoline now are selling at \$1.10/gallon in most parts of the country.

The Japanese automakers, meanwhile, will ship the same number of vehicles to the U.S. from April 1, 1986 to March 31, 1987, as they did during the same period in 1985-1986. They'll ship 2.3 million vehicles plus an additional 100,000 four-wheel-drive and other vehicles.

HEAVY EQUIPMENT—Shipments of farm equipment likely will drop from \$3 billion in the second quarter of 1985 to \$2.8 billion in the same period this year. Shipments of construction equipment, however, will rise \$1.6 billion to \$1.7 billion in the same period.

This is the year when the U.S. Congress' 1985 farm bill takes effect. The bill puts more pressure on farmers to leave land idle—and so cut the supply and, in theory, raise the demand for crops.

Farmers in 1986 will set aside 50 million acres for non-cultivation, compared with 35 million acres last year, one observer says. Fewer acres of active soil can't help but decrease demand for farm equipment.

World commodity prices remain low. Farmers' debts—and the cost of servicing them—remain high. As farmers receive more money from the government for not tilling land, however, the average income in 1986 should equal that in 1985.

Inventories of farm equipment are too high and need to be reduced. Equipment with over 100 horsepower has been hit the hardest. Shipments of farm equipment over 100 hp will decline by 7 pct; equipment of 40-100 hp, increase by 1 pct; and under 40 hp, rise by 7 pct.

Fully two-thirds of the variations in construction equipment is due to housing starts, says one economist. He predicts at least 1.7 million starts in 1986, after 1.74 million in 1985 and 1.75 million in 1984. Low interest rates could propel this year's starts above last year's level.

New housing means new roads. One economist forecasts at least \$11.5 billion in government spending on highways and streets, compared with \$11.7 billion last year. He expects almost 30,000 back hoes to be shipped in 1986—about the same number as in 1985.

MACHINE TOOLS; FLUID POWER

MACHINE TOOLS—The U.S. machine tool industry may be off pace by 10 pct in the next quarter, with no signs of relief.

The larger builders who are heavily involved in the development of machining and manufacturing systems appear to be doing well. Several large orders have been announced since the beginning of the year that reinforce the economists' predictions that flexible systems would be a strong area for this sector of the industry.

But every builder does not, at present, design and engineer complex systems. Most in this group produce standard machine tools such as surface grinders, cylindrical grinders, milling machines, metal forming and stamping presses, and a host of other machines which may stand alone or may be incorporated into larger systems by other firms. Generally speaking, these builders are in a holding pattern, with some making a little progress while others languish. The prospects for this group in the months ahead are for more of the same.

There is also a small group of builders who have carved out a niche over the years that continues to do well in spite of the ups and downs of the general business cycle. Some of these firms have built up an overseas business that is often countercyclical to the U.S.

A fourth segment of the machine tool market, the importers of standard as well as highly sophisticated machine tools, has grown in size over the past few years. Some of these firms have established manufacturing/assembly operations in the U.S. and are beginning to challenge the domestic systems builders. The outlook for this group continues strong due to lower prices, innovative spirit, and a strong economy that favors modernization programs.

FLUID POWER—New orders for hydraulic and pneumatic fluid power equipment during January showed a positive gain of 24 pct over December, yet were down 2 pct from a year ago. It seemed as though all of 1985 was a down year despite the upturn in the general economy.

The outlook for 1986 appears to be a duplicate of 1985, at least in the beginning. The recent decline in the value of the dollar and interest rates could have a two-fold beneficial effect. As the dollar declines, the cost of imports rises. This, of course, should discourage imports while improving the opportunities for domestic outsourcing.

Lower interest rates should entice domestic manufacturers to borrow capital for plant and equipment modernization programs at home rather than overseas.

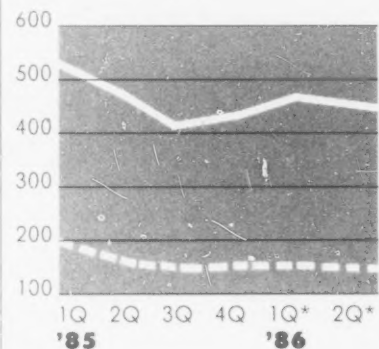
Further enhancing the outlook for fluid power in the months ahead is the outlook for its bellweather industries: aircraft, appliances, automotive, construction, defense, farm equipment, machine tools, and marine equipment.

The major or leading user of fluid power equipment is the mobile equipment sector, with 45 pct of the market. But factory automation also ranks high and there is a lot of activity in automated part transfer and part storage systems that is critical to this market, particularly with the trend to flexible, unmanned automated cells and systems.

Competition from overseas firms continues to plague the domestic fluid power industry. Direct competition is in the form of fluid power products, while the indirect comes from completed finished products that never saw the inside of a U.S. factory. Market share statistics are now beginning to be developed by the various associations but will not be available for many months.

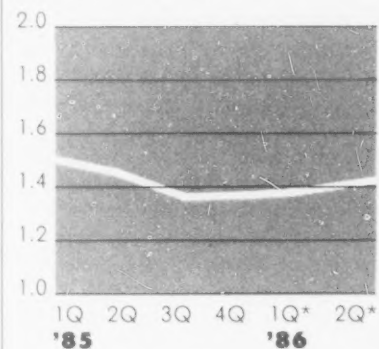
The U.S. machine tool industry may be off pace by 10 pct in the next quarter.

**Machine Tools
Net New Orders**
In Millions of Dollars



Legend: — Metalcutting, - - - Metalforming
Source: National Machine Tool Builders Assn.
*1A estimate

Fluid Power, Sales
In Billions of Dollars



Source: U.S. Department of Commerce and NFPA
*1A estimate

COATINGS; PLASTICS

COATINGS—Shipments of industrial coatings likely will rise slightly from 99 million gallons in the second quarter of 1985 to 101 million gallons in the same period this year.

Metal office furniture and aluminum extrusions will be the markets of biggest growth for coatings.

The auto industry, the leading market for coatings, expects to build about 200,000 fewer cars in the second quarter of 1986 than in 1985.

Coil coatings continue to gain an increasing share of the coatings market in the appliance industry. "Just about every time an appliance maker changes his coating facility, he switches to coil," explained the coil-coatings manager of one major firm.

General Electric refrigerators, for example, use precoated coil for such interior parts as the shelving and also for such exterior parts as the cases. Ironically, precoated steel's smooth appearance works against its use for refrigerator doors: Appliance makers like the porcelain look of sprayed metal. Coil coaters, however, are working on embossing their material to win that sizable market, too.

Powder coatings are the fastest-growing segment of the coatings industry. Shipments of powder coatings jumped by 25 pct in 1985 and probably will do the same in 1986. Powder coatings now account for perhaps 7 pct of the coatings shipments, estimates one executive.

More auto and appliance plants are using powder coatings. The powder that doesn't land on the product being coated can be used again. And powders use no solvents.

"We could see all solvents eliminated from all coatings over time," said one executive. As government identifies a growing number of toxic elements in solvents, businesses are turning to powder coatings, water-based coatings, and coil coatings.

PLASTICS—One of the busiest activities in the raw materials business in the opening months of 1986 was trying to guess the effect of sliding oil prices on plastics (from resin through manufacturing) and the impact on rival materials. More than one source said there was little doubt that resin costs were coming down, but the full effect can't be predicted until the oil price settles, and with it the cost of natural gas.

There was early speculation that the producers would switch to heavier feedstocks and this would mean more propylene and butadiene by-product.

Sources noted that most U.S. ethylene plants are geared to run more efficiently on the lighter feedstocks and this would limit any switch to heavier feedstocks right away. The problem, they said, will come when the European plants, which favor the heavier feeds, start applying the pressure here.

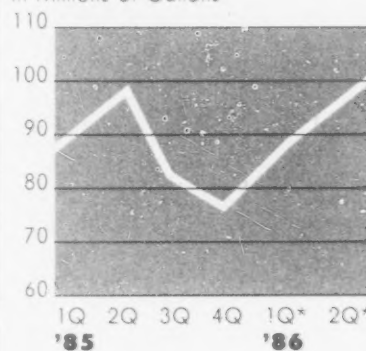
Industry sources generally expect that the engineering plastics and composites will continue to chip away at metal applications, particularly in the automotive and aircraft sectors. Final figures for 1985 showed apparent consumption of thermoplastics was 33.76 billion lbs, of which imports claimed about 4 pct. Apparent consumption of thermosetting resins was 5.61 billion lbs, of which imports claimed a narrow 1 pct.

In terms of sales and captive uses, thermoplastic polyester resins were up 11.2 pct to 955.7 million lbs and the nylon resins managed a 3.6 pct gain to 402.9 million lbs. The epoxy resins, which find their way into electronics and aerospace composites applications, slipped 3.6 pct to 367.2 million lbs. Sources said aerospace uses held up quite well and the decline reflected last year's softer electronics markets.

Coil coatings continue to gain an increasing share of the coatings market in the appliance industry.

Industrial Coatings Shipments

In Millions of Gallons

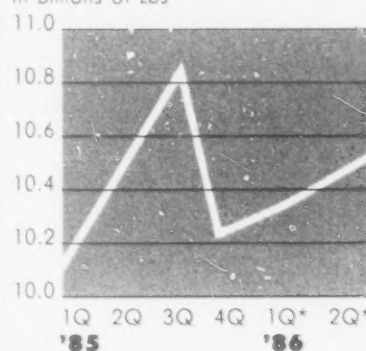


Source: U.S. Department of Commerce

*1A estimate

Plastic Resins Sales & Captive Use

In Billions of Lbs



Source: SPI Committee on Resin Statistics as compiled by Ernest & Whinney

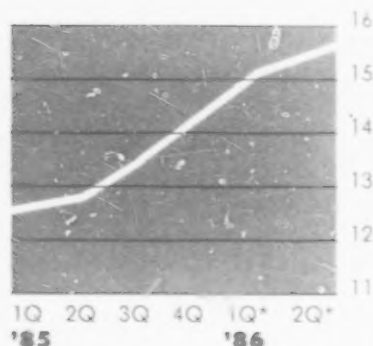
*1A estimate

COMPUTERS; INSTRUMENTS & CONTROLS

Computer sales now are up several percentage points from 1985's pace.

Computers Shipments

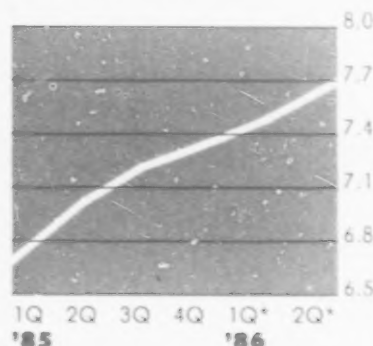
In Billions of Dollars



Source: U.S. Department of Commerce
*1A estimate

Instruments & Controls Shipments

In Billions of Dollars



Source: U.S. Department of Commerce
*1A estimate

COMPUTERS—Though not yet its old self, the computer industry appears to be emerging from the doldrums. Last year soft domestic sales coupled with increased imports gave the industry an 8 pct growth rate compared with 25 pct in 1984.

This year growth is expected to top 16 pct. Based on first quarter observations, that expectation is reasonable. Sales now are up several percentage points from 1985's pace and growth should continue through the second quarter and beyond.

Last year was a year of caution. Emphasis shifted from buying new computers to making better use of existing models. The inability of computers to communicate with each other became a major concern. Financially strapped, firms delayed buying in anticipation of improved technologies.

This year is different. Promised technologies are here, or soon will be. For example, the Sierra series mainframes from IBM and the DEC Microvax II workstations are now available. RISC machines from IBM and Hewlett-Packard based on reduced-instruction-set-computer architecture are weeks away. These machines promise improved speed through design simplicity.

From all indications, business in general is healthier this year. Improved profit coupled with better products to spend it on is turning computer sales around.

However, all is not roses. Managers are still cautious about their purchases. Lack of communication between computers is a problem. Networking technology still has a way to go. Also, the growth of imports is a continuing concern. However, with the strength of the dollar against other currencies declining, exports, which picked up considerably last year, should be even stronger over the next several quarters.

INSTRUMENTS & CONTROLS—Shipments of instruments and controls (now called industrial and scientific instruments by the U.S. Commerce Dept.) reached \$28.5 billion in 1985 and should grow at a current rate of 5.7 pct in 1986.

Of the three major classifications of instruments, the most relevant to manufacturing is *measuring and controlling instruments* (the other two being *scientific instruments* and *instruments to measure electricity*).

Measuring and control products are up several percentage points in sales this year due to increased spending by manufacturers. However, this growth is not universal. For example, major users of process controls, namely steel and domestic oil and gas industries, remain depressed and therefore uninterested in new controls. In addition, many manufacturers, facing increased competition, are cutting back on new equipment purchases or sending their manufacturing overseas.

New construction typically pushes up sales of a variety of instruments. Industrial construction, still recovering from the last recession, but spurred on by receding interest rates, is expected to grow by 10 pct in 1986.

Manufacturing capacity utilization and profits, leading indicators of future construction, are fairly high and getting stronger.

Because the instruments and controls industry is so broad a category, perhaps the best indicator of the strength of the industry is the general state of the economy. And here experts are guardedly optimistic. Predictions of moderate growth both in the U.S. and abroad for the first half of 1986 should hold true for the sales of instruments and controls.

Export sales, in particular, are picking up and should strengthen.

(Cont. on p. 57)

APPLIANCES; MATERIAL HANDLING

APPLIANCES—Records continue to be set by the appliance industry in the U.S., even after setting a new mark, for the second consecutive year, during 1985. Nearly 41.8 million major appliances were shipped in 1985, beating the previous record by more than 2.3 million units, according to the Association of Home Appliance Manufacturers.

December and fourth-quarter shipments established new record highs of 2.9 million and 10.1 million units respectively. Fourth quarter shipments were 6 pct greater than in the same quarter in 1984.

The torrid pace extended into January, with shipments at 3.6 million units, a record.

Prospects for the rest of the quarter and first half of 1986 continue to look good. Interest and mortgage rates are still declining and the demand for new homes is increasing. Housing starts, while fluctuating on a monthly basis, are on an upward trend and started off with a 15.7 pct jump in January, according to the U.S. Dept. of Commerce.

If this pace continues it could translate into 2.09 million housing units for 1986. However, the department does not see it as lasting through the year and projects a slight decline to 1.74 million units.

To put things into perspective, one-fourth of 1985's shipments, at 10.8 million units, were microwave ovens, up 19 pct over the record set in 1984. Food disposers also set a new annual record at 1.1 million units. December tally also showed refrigerator shipments up 18.8 pct; electric ranges, up 15.7 pct; automatic washers, up 14.2 pct; dishwashers, up 15.8 pct; and dryers, up 10.3 pct.

According to the current forecast, the appliance industry expects shipments to reach 40 million units this year and 39.8 million units in 1987.

MATERIAL HANDLING—A major materials handling equipment maker sees his company's second quarter bookings up by 10 pct over the first quarter.

Since about 60 pct of his business is automotive and related industries, he said, "the auto companies are making the difference."

Other systems executives noted continuing strength in the food and beverage markets, and firm electronics markets through the second half. But the automatic pallet business currently is flat, one industry spokesman said.

Another AS/R systems manufacturer noted that his backlogs are in good shape, but kept stressing that although custom warehousing systems have a broad market—from steel to electronics—it's hardly a case of "easy come" these days.

"You're busy bird-dogging and quoting, you're doing more for what you get and straining to keep up," he explained.

Still, he's pleased with the high-end, sophisticated segment of the industry and sympathizes with the industrial forklift truck makers.

Driven to severe price-cutting tactics, one truck manufacturer admitted slashing prices 30 pct over the past three years. This is not unusual. But truck makers are tempted to discount because of quick turnover.

As one industry source put it, "we settle for half a loaf."

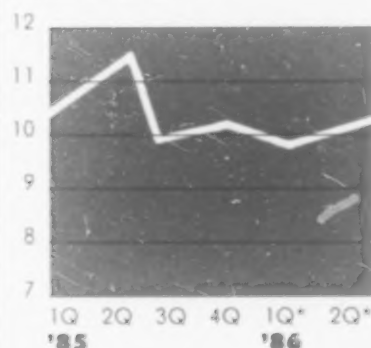
Price-cutting combined with automation's reduction in labor costs, is also hyping the market for automated guided vehicles. They present an attractive package—attractive enough to "pry some capital out of otherwise tight-fisted customers."

Meanwhile, German, Japanese and Korean imports continue their assault on the U.S. forklift market.

Some glitches aside, this industry continues to enjoy good growth.

The appliance industry's prospects for the first half of 1986 continue to look good.

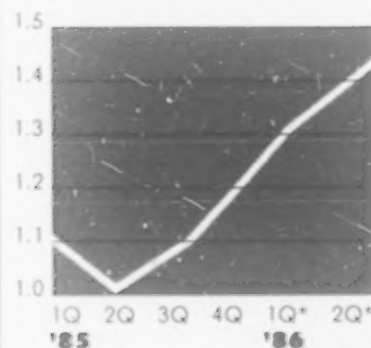
Appliances, Shipments
In Millions of Units



Source: Assn. of Home Appliance Manufacturers

*1A estimate

Material Handling Shipments
In Billions of Dollars



Source: Material Handling Institute

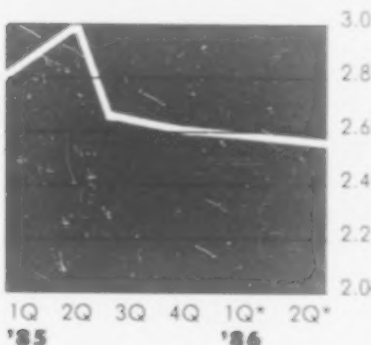
*1A estimate

CASTINGS; FORGINGS

The ferrous castings industry overall is expected to drop 3 pct in shipments in 1986.

Ferrous Castings Shipments

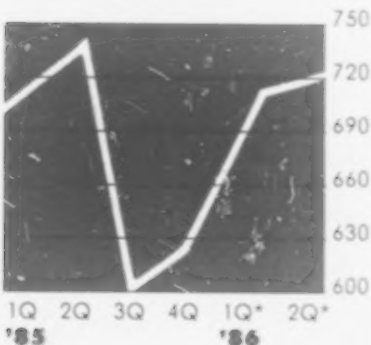
In Millions of Tons



Source: U.S. Department of Commerce and Iron Castings Society
*1A estimate

Impression Die Forgings Shipments

In Millions of Dollars



Source: Forging Industry Assn.
*1A estimate

CASTINGS—Shipments of ferrous castings continue to slip ever so gradually. Business ended up the year on the downside, although orders seem to be holding their own through the first quarter.

More of the same is predicted for the second quarter. After that, the predictions from industry members become gloomier.

The first quarter appeared to be about down a slight fraction from the fourth quarter of 1985, but down some 7 pct from last year's first quarter. One explanation for this slump is the annual 2 million to 3 million tons of castings, either in the form of castings or in assemblies, imported from such countries as Brazil, India and China.

More than 25 pct of the domestic iron foundries have disappeared from the scene, and imports have contributed to their demise.

The farm implement producers have been described as having "an enormous overhang in inventory." Activity coming from manufacturers of construction equipment is slightly better, while the heavy truck industry is down, thus, diesel engines are down as well.

According to one source, new programs within the automotive industry have made the castings business jump a little in Detroit, but this activity is supposed to be temporary.

One forecast presupposes that the ferrous castings industry overall will drop 3 pct in shipments in 1986, compared to a much more severe 7 pct decline in 1985.

Declining gray iron castings shipments are blamed for pulling down the statistics. Ductile iron is increasing by a rate of about 3 pct in shipments, while malleable iron castings are increasing by about 1 pct.

But, the health of the ferrous castings industry will be determined by automotive.

FORGINGS—Forging, a depressed industry in 1985, is expected to show little improvement in 1986. Orders for the first months of this year are up slightly from the same period last year.

For some industry executives that gain provides little or no encouragement, because 1985 orders were a disappointing 15 pct below 1984 totals, and 1984 was not a great year either.

The industry is facing a double whammy. Many traditional buyers of forgings—off-road and farm equipment manufacturers, and oil field equipment suppliers—remain mired in depression. This long-term loss of markets in conjunction with a dramatic growth of forging imports has resulted in the closing of many smaller forging shops and a pessimistic outlook by those still operating.

Imported forgings are flooding into this country both as components of imported finished products: Japanese automobiles, for example, and as parts for domestic producers. Major users of forgings have substantially increased their purchases of foreign forgings.

On the bright side, the continuing strength of domestic car and truck production is giving the forging industry a much needed lift. Automotive production is expected to remain strong for another year, although 1986 output is not expected to top 1985 levels.

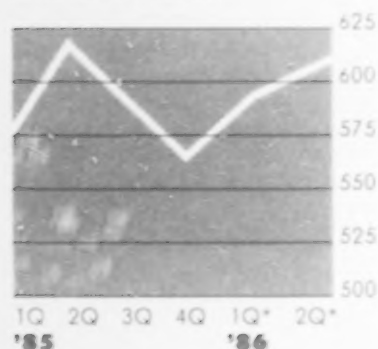
Another area of strength is the defense and aerospace industry. In recent months, new orders for commercial aircraft have risen. As a result, some forging companies have received major orders and additional orders should follow throughout the year. With defense spending still strong, the industry members serving that market foresee a steady demand.

WELDING; HEAT TREATMENT

Only two major markets for welding equipment and electrodes are strong.

Welding Shipments

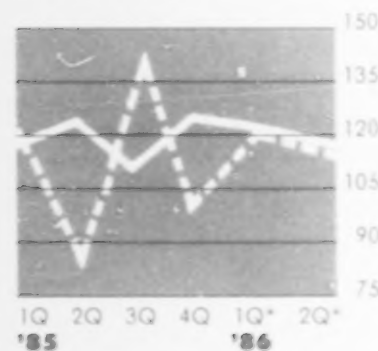
In Millions of Dollars



Index 1Q'85=\$200 million is base year.
Source: National Welding Supply Association
*1st estimate

Heat Treatment

In Millions of Dollars



— Ship of Commercial Heat Treating
- - - Heat Treating Equipment Under
Source: National Welding Supply Association
Metal Treating Institute
*1st estimate

WELDING—In any discussion of the economic climate within the welding industry, there are two main sources of information. One is the domestic manufacturers of welding equipment and electrodes, and the other, the welding distributors.

The word from the manufacturers is not good, mainly because the industry experienced a precipitous 25 pct drop in business during the third quarter of 1985. Sales returned to normal in the fourth quarter and they will probably stay that way through the rest of 1986.

The news is more cheerful from the National Welding Supply Association, Philadelphia, the statistic gathering body of the distributors. The association says a steady improvement in business is underway.

Looking back, the manufacturers enjoyed a 3 pct gain in dollar volume of welding equipment from 1984 to 1985. Welding electrodes, on the other hand, decreased by 5 pct during the same period. Imports are starting to come in, the amount increasing from 9 pct in 1984 to 13.5 pct in 1985, most of them in welding electrodes. Canada and Mexico lead the list of exporters.

Of the eight or so major markets for welding equipment and electrodes, only two, automotive and aerospace, are strong. Also very strong is the small shop with its 225 amp or less power source. Repair welding is holding its own.

Including gases for arc shielding and cutting, the welding industry had a \$2.6 billion year in 1985. There are those who believe 1986 will be a \$3 billion year. *Iron Age* isn't so sure about that.

To achieve that goal, there will have to be some dramatic turn-arounds in such industries as power plant construction, pipelines or off-shore construction, all major users of welding.

HEAT TREATMENT—Heat treating continues to do fairly well.

Commercial heat treaters in the Houston area say business is way off from the first quarter of 1985, but it's on a par with the fourth quarter of 1985. Little improvement is seen there for the second quarter.

The strongest segments are aerospace and automotive. Both had good fourth quarters, have just finished up with strong first quarters and look forward to equally strong second quarters. Both industries also are a few percentage points ahead of the same periods in 1985.

Heat treating for the construction and farm equipment industries has picked up only slightly over the fourth quarter.

Overall, commercial heat treating in the first quarter is down about 0.25 pct from the fourth quarter but is up about the same amount over the first quarter of 1985. Again overall, it looks like commercial heat treating activity might drop another fraction of a percent in the second quarter.

Business has been volatile over the past 12 months, according to the builders of heat-treating equipment. However, indications are that business has started to flatten out there as well.

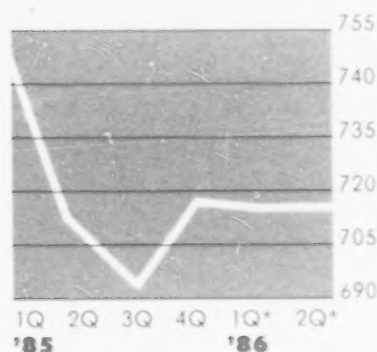
Sales jumped 16 pct from the fourth quarter 1985 to the first quarter 1986. The second quarter looks like it will only have a half percent or so decrease from the first quarter. So far this year, conditions look slightly better than the same period in 1985.

One furnace builder noted that aerospace and defense are very strong and that automotive is holding its own, though no upturn is envisioned there. He also saw no strong upturn in the farm implement industry. Out-sourcing has a lot to do with it.

FASTENERS; STAMPINGS

The fastener industry could remain in a holding pattern for the next several months.

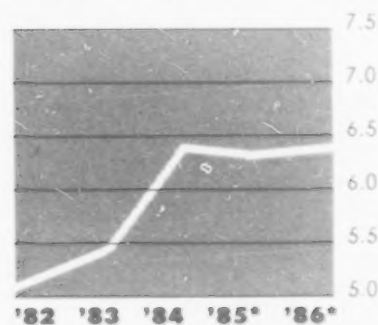
Fasteners, Sales
In Millions of Dollars



Source: Industrial Fasteners Institute

*1A estimate

Stampings Shipments
In Millions of Dollars



Based on the average of a control group whose shipments total more than \$500 million annually.

Source: American Metal Stamping Assn.

*1A estimate

FASTENERS—Depending on whom you contact, the fastener industry will be on a yo-yo in the new quarter.

Those selling custom-formed parts (specialty lines), may average out at a 3 to 4 pct increase in sales. But one optimistic Eastern maker, for instance, sees his firm's orders soaring by 8 pct in the second quarter compared to the first three months of 1986, thanks mostly to the aerospace market.

Unfortunately, the mechanical fastener end of the industry will continue to be bloodied by imports. More than half of the nuts, bolts, washers, rivets or screws bought in the U.S. today are imported.

This leads one industry analyst to conclude that the overall fastener industry could remain in a holding pattern for the next several months.

Among domestic-made fasteners, about a third head for auto and truck manufacturers, so fastener makers that supply this market are still optimistic. (Domestic car sales withered a bit in late January, but new incentives should help to restore the sales bloom).

Likewise, commercial aircraft and appliances are strong, and the defense sector will provide some new business, though it may turn out to be more expectation than reality. Congress keeps snipping at the Reagan defense budget and the effect of the Gramm-Rudman law is yet to be felt.

The softer dollar likely will do little to help U.S. exports of special fasteners. According to a Midwestern manufacturer, the overseas market is limited to overhauling or maintenance.

Small parts orders to the electronics industry are expected to remain brisk in the second quarter. Orders from steel, bridge-building and off-road vehicle industries will be down.

STAMPINGS—One report earlier this year suggested that the stamping industry's shipments would match the 1985 pattern. A plateau is anticipated for most of 1986, "with the possibility of a slight decline in activity later in the year."

If this holds up, second quarter orders will total \$1.6 million, with shipments at \$1.7 million.

In the meantime, say several industry members, some brighter signs have appeared on the industry's horizon that could boost sales by perhaps 2 to 3 pct this year.

As one stamping executive in the Midwest explained: "It does look better out there, not sensational, but certainly better than if you had caught me a month ago."

Despite the late January falloff in domestic car sales, stampers supplying the auto industry seem confident this will turnaround shortly. The automakers hope to retain their sales momentum through special financing deals. In addition, price-cutting from the oil glut should encourage big car sales as gasoline pump prices drop.

Similarly, stampers that supply the appliance market see their market on the upswing this year. Following January's turnaround in starts of single and multi-family houses, builders' sales of appliances likely will rise from already record levels. Also, stability in consumer confidence should ensure replacement demand.

Stampers supplying office machinery, computers or medical instruments appear to be on safe ground; those that sell to farm machinery manufacturers see little improvement.

Meanwhile, lead times are running about six to eight weeks. Most U.S. companies have learned the wisdom of low inventories, and stampers are no exception.

AIRCRAFT

QUARTERLY FORECAST

The commercial aircraft business promises to be a busy one for the major airframe companies in 1986 if only for the effect of last year's surge in orders for jetliners on the industry's healthy backlog.

That increase was anywhere from 40 to 80 pct, depending on who's counting how far down the size range. One estimate for Boeing, McDonnell Douglas, and Airbus put net orders up 42.5 pct (excluding aircraft below 110 seats) while another marked the scorecard up better than 80 pct.

The airframe companies aren't about to write 1986 off yet as a so-so year for orders pending a closer look at a few clouds on the horizon.

Both traffic and load factors were showing signs of flattening out as the year began. Also, the drop in the value of the U.S. dollar was seen dampening enthusiasm here for travel abroad. On the other hand, this could mean more traffic origi-

nating overseas.

Airline capacity estimates point to another increase this year. They range from 4 to 6 pct, depending on how much weight is assigned to tougher maintenance schedules in the wake of added emphasis on airline safety. Some of the increase in capacity can be credited to the sizable jump in jetliner deliveries last year. It was something like 33 pct, although most of the increase was in the smaller aircraft, with the rest in the mid-size range.

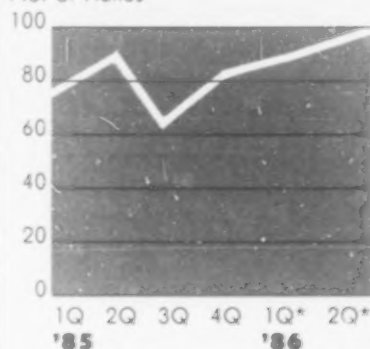
Estimates for 1986 deliveries of jetliners range from 5 to 15 pct, with the third and fourth quarters expected to be the busiest.

Sales growth slowed on the military side of the aerospace business in 1985. The Administration's budget proposals promise further growth this year, but Congress and the Gramm-Rudman law could halt any increase and kill off some new programs as well.

Estimates for 1986 deliveries of jetliners range from 5 to 15 pct, with the second half likely to be the busiest.

Commercial Airplane Deliveries

No. of Planes



Source: Airbus Industrie, Boeing and McDonnell-Douglas

*1A estimate

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IRON AGE/April 4, 1986

MATERIALS PRICES

EFFECTIVE MARCH 17, 1986

(Effective March 17, 1998) Prices displayed in trade based on non-competitive bid/offer per gross ton delivered to customer unless otherwise stated. Prices are the persons of Iron Age editors and are independently based on contacts with dealers, brokers, arbitrageurs and users in the industry on the effective date noted above.

Ferrous Scrap Prices

Pittsburgh

Chicago

Philadelphia

Detroit

Youngstown

Cleveland

Buffalo

St. Louis

Birmingham

Cincinnati

Blowers, D. and J. A. J. (1997) *Journal of the Royal Society of Medicine*, 90, 1001-1002.

New York

Boston

San Francisco

Los Angeles

Seattle

Hamilton, Ont.

Houston

Source: *Journal of the American Statistical Association*, 1997, 92, 1039-1052.

THE PLODDING TREND HOLDS FOR ORDERS

Orders data for January shows that the year got off to a less-than-rousing start.

The data showed orders for the month up by 1.3 pct to \$108.9 billion. But exclude a big jump in orders received by defense-related capital goods producers, and the picture changes.

Defense capital goods orders in January were up a high-flying 45 pct from December. That big lift put these orders at \$10.3 billion for the month.

Another big gainer in January was the auto industry. Sales incentives offered by auto companies helped push these orders up by more than 14 pct.

But that was about the whole ballgame for orders' gains during the opening month of the year.

Both electrical and nonelectrical machinery lines were soft in January. As government orders analysts noted, "There was a mixture of increases and decreases in both categories."

As the year started, the pattern of orders seemed to reflect the record over the year past. Any hint of a broad or strong upswing in orders seems to be missing.

Last year, orders rose in six of the twelve months and declined in the other six months. The year's total orders were up 3.7 pct—which comes out a wash after allowing for higher price tags.

Apparently, business executives themselves are not feeling buoyant about the orders situation. For example, inventories in January continued a 10-month downward trend.

The best hope for some action in orders would seem to lie in forecasts for a stronger economy this year than for last year.

But, even a stronger economy can't help much if imports continue to roll in at their current levels.

Billions of Dollars, Seasonally adjusted
Monthly Total, unless otherwise noted
Source: U.S. Dept. of Commerce

Latest
Month
or Qtr.
Previous
Month
or Qtr.
Same
Period
Year Ago

CAPITAL EXPENDITURES (Annual Rates)

U.S. Industry, Total	1st Qtr*	\$402.1	\$389.0	\$371.2
Manufacturing, Total	1st Qtr*	154.7	155.7	145.7
Manufacturing, Durable Goods	1st Qtr*	74.6	73.5	69.9
Mining Industry	1st Qtr*	15.3	15.2	15.7

KEY INDICATORS, Durable Goods Manufacturing

New Orders	Jan.	108.9	107.5	105.4
Shipments	Jan.	106.1	105.8	102.0
Inventories	Jan.	188.6	189.2	192.2
Unfilled Orders	Jan.	355.8	353.0	350.0

NEW ORDERS, METALWORKING

Capital Goods Producers, Nondefense Industries	Jan.	24.6	30.6	23.6
Capital Goods Producers, Defense Industries	Jan.	10.3	7.2	11.1
Primary Metals, Total	Jan.	10.5	10.1	10.8
Steel (SIC 331)	Jan.	4.2	4.1	4.7
Iron & Steel Castings (SIC 332)	Jan.	1.5	1.1	1.3
Nonferrous Metals	Jan.	4.8	4.9	4.8
Nonelectrical Mach.-Equip. Industries, Total	Jan.	15.9	16.2	15.3
Engines & Turbines	Jan.	1.3	1.7	1.1
Farm Machinery & Equipment (Shipments)	Jan.	0.9	0.8	0.7
Construction, Mining & Mat. Hdlg. Equip.	Jan.	3.1	2.9	2.6
General Industrial Machinery	Jan.	1.4	1.3	1.2
Fluid Power Equipment** (Index-1972=100)	Jan.	292.0	236.0	296.0
Metalworking Machinery	Jan.	0.8	0.6	0.9
Machine Tools, Total (\$Mill., Unadjusted)***	Jan.	188.7	175.0	211.5
Machine Tools, Metalcutting***	Jan.	135.0	116.6	137.8
Machine Tools, Metalforming***	Jan.	53.7	58.4	73.7
Electrical Mach. & Equip. Industries, Total	Jan.	16.0	16.3	17.9
Elec. Transmission Equip. & Ind. Apparatus	Jan.	2.1	2.0	2.0
Household Appliances	Jan.	1.4	1.5	1.5
Communication Equipment	Jan.	5.3	5.2	7.6
Transportation Equipment, Total	Jan.	31.3	31.0	27.8
Motor Vehicles & Parts (Shipments)	Jan.	19.5	17.4	18.4
Aircraft, Missiles & Parts	Jan.	11.2	13.0	8.3
Shipbuilding & Military Tanks	Jan.	-0.1	0.3	0.6
Fabricated Metal Products, Total	Jan.	14.2	14.1	13.6
Instruments, Total	Jan.	4.9	5.0	4.6

*Est.—Commerce Dept. **Source: National Fluid Power Assn. ***Source: NMTBA